

KEMPA, Edward, dr inz.

Studies on the possibilities of dehydrating and gasifying raw sewage sediments. Gaz woda techn sanit 37 no.12:415-419 D '63.

1. Department of Technology of Water and Sewage, Technical University, Wroclaw.

KEMPA, Edward

Use of fabrics of artificial fibers in sewage sediment draining processes. Gaz woda techn sanit 38 no.4:124-128 Ap '64

1. Department of Water and Sewage Technology, Technical University, Wroclaw.

KEMPA, Edward

Studies on the combustion properties of raw sewage sludge from cities. Chemia stosow A 8 no.3:345-359 ^{164.}

1. Department of Technology of Water and Sewages of the Wroclaw Technical University.

LEONOWICZ, Konstanty; KEMPA, Jadwiga

Effect of heparin and decholine on Congo red binding by serum proteins during nutritional lipemia. Polski tygod. lek. 15 no.21:777-778 23 May '60.

1. Z II Kliniki Chorob Wewnętrznych A.M. w Gdansk, kierownik:
prof. dr Jakub Penson
(BILE ACIDS AND SALTS pharmacol)
(HEPARIN pharmacol)
(BLOOD PROTEINS)
(AZO COMPOUNDS blood)
(LIPIDS blood)

KEMPH, Jadwiga

1. "Early Diagnosis of Multiple Sclerosis. XII. Motor and Other Symptoms (Lectures on the Pathology of Multiple Sclerosis) (Psychoneurological Institute, Director Prof. Z. KULONICKI, MD); pp 172-178 (English summary).
2. "Action of Acetylcholine in Rabbit's Observation." D. KULONICKI, G. LADZICKI, D. KULONICKI, and A. KULONICKI. "The Third Clinical Report of the Director of the Medical Academy at Lublin (Director: Prof. Dr. E. KULONICKI) of the State Research Office (Lublin, Lublin Medical Academy) as Director of the Institute of Neurology (Director: Prof. Dr. K. KULONICKI) at Lublin (Director: Prof. Dr. K. KULONICKI); pp 179-182. (English summary).
3. "Broken Treatment." Anna KULONICKI and Alexander KULONICKI. "The Third Clinical Report of the Director of the Medical Academy at Lublin (Director: Prof. Dr. E. KULONICKI) of the State Research Office (Lublin, Lublin Medical Academy) as Director of the Institute of Neurology (Director: Prof. Dr. K. KULONICKI) at Lublin (Director: Prof. Dr. K. KULONICKI); pp 183-188. (English summary).
4. "Most Frequent Errors in Clinical Diagnosis Resulting from Wrong Interpretation of the Physical Examination." Józef KULONICKI of the Medical Academy at Lublin (Director: Prof. Dr. E. KULONICKI); pp 189-190. (English summary).
5. "Experiments of Motor Magnetics with the Scholier Method." Józef KULONICKI, Józef KULONICKI, and Anna KULONICKI. "The Third Clinical Report of the Director of the Medical Academy at Lublin (Director: Prof. Dr. E. KULONICKI) of the State Research Office (Lublin, Lublin Medical Academy) as Director of the Institute of Neurology (Director: Prof. Dr. K. KULONICKI) at Lublin (Director: Prof. Dr. K. KULONICKI); pp 191-193. (English summary).
6. "Magnetics of Preparation P 193 (Formal). II. Section in Medical Academy, Anna KULONICKI, Jadwiga KEMPH, Józef KULONICKI, and Anna KULONICKI. "The Third Clinical Report of the Director of the Medical Academy at Lublin (Director: Prof. Dr. E. KULONICKI) of the State Research Office (Lublin, Lublin Medical Academy) as Director of the Institute of Neurology (Director: Prof. Dr. K. KULONICKI) at Lublin (Director: Prof. Dr. K. KULONICKI); pp 194-195. (English summary).

— 1/2 —

KEMPA, Jan. mgr inz.

The House of the Technician in Danzig. Przegl techn 85
no. 25:4,8 21 Je '64.

BIELSKI, Tadeusz, dr. med.; KEMPARA, Janusz

A case of congenital deformity of the carpal bones associated with hypoplasia of the thenar muscles. Chir. narzad. ruchu ortop. Pol. 30 no.1:73-77 '65

1. Z Oddziału Ortopedyczno-Urazowego Szpitala Miejskiego im. dr. A. Mieleckiego w Chorzowie (Ordynator: dr. med. T. Bielski).

ACCESSION NR: AT4040783

8/2857/64/000/011/0203/0213

AUTHOR: Kempe, F., Popov, I. A.

TITLE: Frequency stability of an autogenerator using a tunnel diode in the face of feed voltage fluctuations

SOURCE: Poluprovodnikovyye pribory i ikh primeneniye; sbornik statey, no. 11, 1964, 203-213

TOPIC TAGS: autogenerator, autogenerator stability, germanium diode, frequency stability, tunnel diode, semiconductor device, harmonic generator

ABSTRACT: The purpose of the present paper was to determine the effect of a variation in feed voltage on the frequency stability of harmonic autogenerators using a tunnel diode. The dependence of auto-oscillation frequency stability on feed voltage for a single simple autogenerator arrangement with an external parallel LC oscillatory circuit is analyzed. The circuit elements C_b , L_{choke} and R_{noise} are designed to block and suppress spurious oscillations (see Figure 1, a in the Enclosure). The analysis is made on the basis of the circuit shown in Figure 1, b, with allowance for the non-linearity of the volt-ampere characteristics and the natural capacitance of the junction C_0 , but without consideration of

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the lead inductance L_g or the series loss resistance of the diode r_g . The authors maintain that the effect of the last two factors is of no consequence only on frequencies for which the following inequality is satisfied:

$$|r_g + j\omega L_g| \ll R_0 \quad (1)$$

(R_0 is the equivalent resistance of the circuit). For modern tunnel diodes, this inequality is valid for frequencies of less than 100 Mc. Thus, the analysis presented in the article is valid for comparatively low radio frequencies. The effect of junction capacitance and upper harmonics is studied, and experimental investigations are described, the purpose of which was to check the order of frequency stability as a function of feed voltage variation and the dependence of stability on the position of the reference point on the characteristic curve and on the regeneration margin. The authors show that below a certain frequency f' , provided the mode and circuitry have been correctly selected, frequency stability is determined by the upper harmonics. At higher frequencies, frequency stability is impaired because of the capacitance of the junction. The effect of the upper harmonics does not depend on frequency and for realistic circuit Q's and proper modes and circuit arrangements for germanium diodes it gives a frequency stability on the order of $(3 - 5) \cdot 10^{-6}$ for a 10% supply-voltage drift. Other conclusions, together with formulas to express them, are given in the text of the article. Orig. art. has 5 figures, 8 formulas and 1 appendix.

Card 2/4

ACCESSION NR: AT4040783

SUBMITTED: 00

ENCL: 01

SUB CODE: EC

NO REF SOV: 001

OTHER: 002

Card 3/4

ACCESSION NR: AT4040783

Enclosure 01

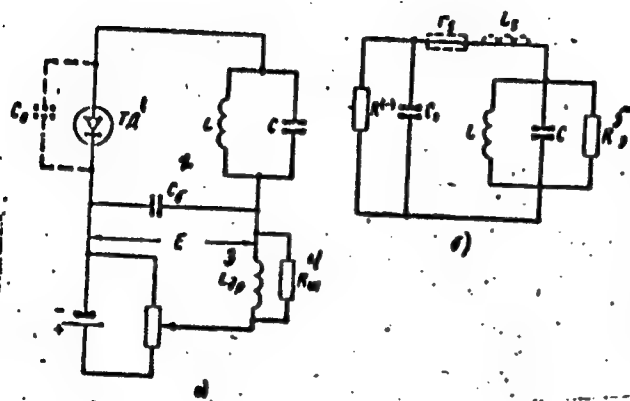


Fig. 1. Autogenerator circuit (a) and equivalent circuit (b): 1 - tunnel diode; 2- C_b ; 3 - L_{choke} ; 4 - R_m ; 5 - R_{noise} .

Card 4/4

1944, 1945

and official colloquy on the metallurgy of pure metals and
their alloys. Vol. 1, 1944. No. 6, 1945. 30 pp.

KEMPELEN, Attila, dr.

Newer investigations on human genital chromosomes. Term tud kozl 5
no.6:285 Je '61.

KEMPELEN, Attila, dr.

Luminescence of marine life. Elovilag 8 no.2:26-29 Mr-Ap'63.

KEMPELEN, Attila, dr.

Some significant morphogenetic laws governing the initial stage of life. Elovilag 7 no.4:11-17 J1-Ag '62.

KEMPELEN, Attila, dr.

Specific evolution of living organisms and structural
analysis of inorganic substances. Elovilag 6 no.1:11-17
Ja-F '61.

KEMPELEN, Attila, dr.

Is hearing possible without the ears? Elet tud 18 no.37:1164-
1167 15 S '63.

MEMORANDUM, AMEMB, AR.

Re: "The Great Adaptation in the Field of Living Beings."
Elyot, G. no. 5:20-25 2-0 164.

KEMPELEN, Attila, dr.

Some results of present-day anthropological research. Elovilag
9 no.6:3-9 1-0 '64.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721520003-1"

HUNGARI / Physical Chemistry, Thermodynamics, Chemistry,
chemistry, Equilibria, Physical-Chemical Analysis,
Phase Transitions.

Abs Jour: Ref Zhur-Khimiya, No 18, 1958, 60116.

Author : Sandor Lengyel, Marta Kempelen.

Inst : Academy of Sciences of Hungary.

Title : Theoretical Determination of Hydration Heat.

Orig Pub: Magyar tud. akad. Alkalm. mat. int. kozl., 1953,
2, 489-498.

Abstract: Admitting the dielectric saturation, the authors
compute the hydration work of alkali metal halides.
Rejecting the computation of Webb (Webb T. J., J.
Amer. Chem. Soc., 1926, 48, 2589), the authors take
into consideration the data of Kirkwood and Booth
(Kirkwood J. G., J. Chem. Phys., 1939, 7, 911; Booth
F., J. Chem. Phys., 1951, 19, 391) concerning the
dielectric behaviour of water.

Card 1/1

KEMPER, H.

Journal of Applied Chemistry
April 1954
Industrial Inorganic Chemistry

✓ Influence of flame-cleaning on properties of steels. H. Kemper and W. Pomaska (Schweissen u. Schneiden, 1953, 6, 201-204; 256-257; J. Iron Steel Inst., 1954, 178, 148).—The effects of gases, dusts, and vapours, and the amount of rust encountered during flame-cleaning are discussed. The influence of temp. on the structure and strength of the steel under static stress and on aging was investigated and a method developed for determining stresses in flame-cleaned material. The sample cut into sections and each section is examined individually with strain gauges. The crystal structure was examined by X-rays; stresses are highest at right-angles to the flame path. Tests were carried out on high-tensile steels to determine the effect of flame-cleaning on fatigue. The fatigue strength decreases slightly. Corrosion tests were carried out. Flame-cleaning is an effective method of rust removal. Brief mention is made of a new method of protection in which flame-cleaning is combined with a thermo-chemical treatment.

R. B. CLARK

38117. KEMPER, M. M.

Bol'she vnimaniya razvitiyu shchetino-shchetchnoy promyshlennosti.
Legkaya prom-st', 1949, no 11, s. 31

KENTER, H. M.

Books and Pamphlets

Monthly List of Russian Assassinations, Leg. press, No. 1, 1954.

- Monthly List of Russian Assassinations, Library of Congress, March 1954. Unclassified.

KEMPER, M.M.

[Bristle and brush industry] Shchetinno-shchetochnoe proizvodstvo.
[Moskva] Gos. izd-vo Ministerstva legkoi i pishchevoi promyshl.,
1953. 270 p. (MLRA 7:2)

(Bristles) (Broom and brush industry)

KEMPER, M.M.

ARBUZOV, S.V.; KEMPER, M.M.

Improving the quality and expanding the assortment of bristle and
brush products. Leg.prom. 14 no.9:10-11 S '54. (MIRA 7:9)
(Brooms and brushes)

KEMPER, M.M.

There should be a lowering of costs for products of the bristle-
brush industry. Leg. prom. 16 no.1:13-14 Ja '56. (MLRA 9:6)
(Broom and brush industry)

KEMPER, M.M.

Brush industry during the sixth five-year plan. Log.prom.17 no.3:
10-11 Mr '57. (MLRA 10:4)

1. Starshiy nauchnyy sotrudnik RosTaMekosh.
(Brooms and brushes)

KEMPER, M.O.

ATAVINA, G. V., M. O. KEMPER, and D. I. LINETSKII.

Anodnaia poliarizatsiia v samoletostroenii; pod red. V. O. Krenig.
Moskva, Glad. red. aviats. lit-ry, 1936. 47 p., illus.

Title tr.: Anode polarization in aircraft construction.

TI698. A78

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of
Congress, 1955.

KEMPER **6-I-6**

BC

APPLIANCE FOR MEASURING THICKNESS OF PROTECTIVE GALVANIC COATINGS. M. O. Kemper (Iaved. Lab., 1936, 5, 1396)

A piece of In- or Cd-coated Fe sheet of known area is placed in 15-20% H_2SO_4 containing 1% of As_2O_3 to complete dissolution of the surface layer, the thickness of which \propto the vol. of H_2 evolved.

R.T.

ASS-11A METALLURGICAL LITERATURE CLASSIFICATION

| SEARCHED | INDEXED | SERIALIZED | FILED | COLLATION | REMARKS |
|----------|---------|------------|-------|-----------|---------|
| | | | | | |

KEMPI, A.A.

Effectiveness of the OP-10 dust-wetting agent during the drilling
of holes. Zap. LGI 38 no.1:118-122 1959 (MIRA 14:3)
(Boring) (Dust-Prevention)

KEMPI, A.A.

Wet method of dust prevention at below-freezing temperatures.
Zap. LGI 46 no.1:47-51 '62. (MIRA 16:6)

(Mine ventilation—Cold weather conditions)
(Mine dusts—Prevention)

CA

KEMPIANKA, WL.

ND

Phaseorubin. A. Kozłowski and Wł. Kempianka.
Acta Soc. Bot. Polon. 18, 23-32(1947); *Bull. Soc. Botan.*
France 97, 80(1950).—The tegument of bean seeds "Dig-
bin" contains *phaseorubin* (I) composed from pyrocate-
chol and protocatechuic acid with a structure like antho-
cyan of Robertson and Robinson. I gets yellow with
acids, and blue turning to red with bases. G. Sag

ENTIRE, F.

Interference appearances in Fresnel's mirrors which have been moved apart. In German.

p. 53 (Glasnik Matematičko-Fizički I Astronomski. Periodicum Mathematico-Physicum Et Astronomicum. Vol. 11, no. 1, 1956. Zagreb, Yugoslavia)

Monthly Index of East European Accessions (EEAI) 1C. Vol. 7, no. 2,
February 1958

KERFINT, K.

"International Conference on Scientific and Applied Photography in London." Fotokemijska.
Kemija U Industriji, Zagreb, Vol 3, No 5, May 1954, p. F22

SO: Eastern European Accessions List, Vol 3, No 10, Oct 1954, Lib. of Congress

KEMPINSKAS, V.V.

Cats and the valerian. Priroda 50 no.8:124 Ag '61. (MIRA 14:7)

1. Kaunasskiy gosudarstvennyy meditsinskiy institut.
(CATS) (VALERIAN)

KEMPINSKAS, V., asist.; GURAUSKAS, V.

Toxic effects of methylthiouracil. Sveik. apsaug. no.5:32-33 '62.

1. Kauno Valstybinis medicinos institutas. 2. Vilkaviskio rajono
ligonine.

(METHYLTHIOURACIL)

KEMPINSKAS, V.

Action of valerian. Farm. i toks. 27 no.3:305-309 My-Je '64.
(MIRA 18:4)

1. Kafedra farmakologii (zav. - dotsent A.Mitskis) Kaunasskogo
meditsinskogo instituta.

ADZHIMAMUDYAN, N.I.; KEMPINSKAYA, A.V.; UZDIN, M.M.; SHILOV, R.M.;
ZAYTSEV, V.I., retsenzent; LUTOVINOV, G.V., retsenzent;
PISAREVA, Ye.I., red.

[Fundamentals of construction planning of depots and plants
for railroad transportation and of the planning of their ter-
ritories] Osnovy stroitel'nogo proektirovaniia depo i zavodov
zheleznodorozhnogo transporta. [By] N.I.Adzhimamudian i dr.
Leningrad, Leningr. in-t inzhenerov zhel-dor. transporta im.
V.N.Obraztsova, 1963. 79 p. (MIRA 17:7)

1. Rukovoditel' gruppy Leningradskogo Gosudarstvennogo insti-
tuta proyektirovaniya na transporte (for Zaytsev). 2. Lenin-
gradskiy Gosudarstvennyy institut proyektirovaniya na transporte
(for Pisareva)

"APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721520003-1

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CIA-RDP86-00513R000721520003-1"

"APPROVED FOR RELEASE: 06/13/2000

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APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721520003-1"

Kempinski Olgierd

POLAND/Analytical Chemistry - Analysis of Inorganic Substances.

E-2

Abs Jour : Ref Zhur - Khimiya, No 8, 1958, 24765
 Author : Zagorski Zbigniew, Kempinski Olgierd
 Inst : -
 Title : Polarographic Determination of Traces of Thallium in
 Metallic Cadmium and Lead and Also in Iron-Cadmium Bodies.
 Orig Pub : Chem. analit., 1956, 1, No 4, 273-284

Abstract : Description of a method of determining Tl in "cadmium
 sponge" (Cd, Fe and their oxides) (CS) of alkaline storage
 batteries, and also in metallic Cd and Pb. Concentra-
 tion of Tl by precipitation of the thio-urea-perchlorate
 complex of Tl (RZhKhim, 1953, 9121; 1955, 40326) does not
 yield satisfactory results since Cd is almost completely
 precipitated together with the Tl. Good results were ob-
 tained on using the extraction method. 3 g CS are dissol-
 ved in 30 ml 7 N HNO₃, the insoluble residue filtered off,
 the filtrate is evaporated to 10 ml, transferred to the

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721520003-1"

Abs Jour : Ref Zhur - Khimiya, No 8, 1958, 24765

extraction apparatus, 5 ml of bromine water are added and
 extraction with ether is conducted for 5 hours. The ex-
 tract is evaporated, 2 ml of HNO₃ and H₂SO₄ are added, and
 the mixture is evaporated to dryness. The residue is dis-
 solved in 5 ml of the background solution (300 ml 25% NH₄OH
 + 214 g NH₄Cl + 300 ml water saturated with SO₂ + 2.2 li-
 ters of water) and subjected to polarography. Under the
 described conditions of extraction Tl is separated from
 Fe, Cd, Cu and Pb. Analogously Tl is determined in metal-
 lic Pb and Cd. Relative error of determination of Tl in
 CS (10-3% Tl) is $\pm 8\%$, while in metallic Pb and Cd contain-
 ing 10⁻²% Tl, it is of 10⁻²% [?] $\pm 3\%$.

Card 2/2

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Card : 1/2

79

KEMINSKI, O.; ZAGORSKI, Z.

Concentrating traces of silver contained in lead by the precipitation method.
p. 423.

CHEMIA ANALITYCZNA. (Komisja Analityczna Polskiej Akademii Nauk i Naczelna Organizacja Techniczna) Warszawa. Poland. Vol. 4, No. $\frac{1}{2}$, 1959.

Monthly list of East European Accessions (EEAI) LC. Vol. 8, No. 8, August 1959
Uncla.

KEMPINSKI, S.

"Mechanizing longwall cutting", p. 137, (WIADOMOSCI GORNICZE, Vol. 5, No. 5, May 1954, Katowice, Poland)

SO: Monthly List of East Accessions, (EEAL), LC, Vol. 4, No. 5, May 1955, Uncl.

"APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721520003-1

APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721520003-1"

KEMPINSKI, S.; Ledwoch, Z.; Foher, H.

The results of working with the Donbas combines in Poland. p. 3.
(PRACE. No. 17, 1956, Katowice, Poland)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, no. 12, Dec. 1957.
Uncl.

KEMPINSKI, S.

"Two Shifts a Day Using Combines" p. 194 (Hlasomosci Gornicza, Vol. 4, No. 7/8
July/Aug, 1953, Katowice)

SO: Monthly List of East European Accessions, Vol. 3, No. 2, Library of Congress,
February, 1954, Uncl.

KEMPINSKI, S.

Polish Technical Abstr.
No. 4, 1953 Mining

2379

658.542.1:622.237.232.233(49)

Cierpias S., Kempinski S. Operation Results of the
Donbass Cutter-Loader in Polish Collieries.
Wyniki zastosowania kombajnu Donbass w naszych kopalniach.
Przeglad Gornicosy. No. 2, 1953, pp. 48-57, 6 figs., 4 tabs.
The Donbass cutter loader gives good results, in such
conditions as obtain in Polish coal mines, in walls of
from 60 to 150 m long, in seams 0.9 to 2 m thick and at
gradient not exceeding 20°. The coal should, according
to Protodiakonow, have a cohesion factor of not more
than 1.4, and contain no hard intergrowths or interloca-
tions. The top bank should easily part from the roof.
The floor should not be inferior to that used for
cutters, while the roof should be of a quality to enable
it to be exposed, for a short period, along a width of
4 m from the new face. Work organisation, harmonograms
providing for the completion of one cycle per two
shifts. Practical recommendations for operating the
cutter-loader (feeding speed, remedying breakdown).

KEPICHNIK, A. (Varchava)

Protective sanitary zones for the sources of water supply in
Poland. Vod. i san. tekhn. no. 9:38-39 S '61. (HCU 14:11)
(Poland Water-supply engineering)

KEMPINSKIY, M.M.

~~Application of the theory of best approximation functions to~~
the analysis of measuring instrument precision. Izv. tekhn.
no.2:6-11 Mr-Apr '55. (MIRA 8:9)

(Measuring instruments)

ABADZHI, K.I.; BOYTSOV, A.N.; VOLOSEVICH, F.P.; GOBERMAN, P.N.; KUTAY, A.K.;
NARINSKIY, F.I.; ODING, G.A.; RUBINOV, A.D.; SHYURMER, G.A.;
BRZHEZINSKIY, M.L., kandidat tekhnicheskikh nauk, retsenzent; PETROV,
V.I., inzhener, retsenzent; KEMPINSKIY, M.M., inzhener, redaktor;
LEVKINA, T.L., redaktor izdatel'stva; POL'SKAYA, R.G., tekhnicheskij
redaktor

[Reference manual for production control in machine building] Spravochnik po proizvodstvennomu kontroliu v mashinostroenii. Pod obshchei red. A.K.Kutai. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956. 670 p, (MLRA 9:12)
(Machinery industry)

KEMPINSKIY, M. M.

Kempinskiy, M. M. (Leningrad). Calculation for Accuracy in Designing Measuring Instruments p. 245

Interchangeability, Accuracy and Measuring Methods in Machine Building, Moscow, Mashgiz, 1958, 254 pp. (Sbornik Nauchno-tekhn. obshch. mashinostroitel'noy promyshlennosti, Leningradskoye oblast pravleniya, kn. 47).

This collection of articles deals with the topics discussed at the 3rd Leningrad Sci. and Engineering Conference on Interchangeability, accuracy and Inspection Methods in Machine-building and Instrument-making, held 18-22 Mar 1957.

KEMPINSKIY, M.M. (Leningrad)

Designing measuring instruments for precision. [Izd.] LONITOMASH
47:245-250 '58. (MIRA 11:10)

1. Rukovoditel' seksii avtomatizatsii i mekhanizatsii kontrolya;
podnaladki nauchno-tekhnicheskogo obshchestva Mashproma.
(Measuring instruments)

28(1)

PHASE I BOOK EXPLOITATION

SOV/2915

Kempinskiy, Mikhail Mendelevich

Proyektirovaniye mekhanizmov izmeritel'nykh priborov (Designing Mechanisms for Use in Measuring Instruments) Moscow, Mashgiz, 1959. 142 p. Errata slip inserted. 5,000 copies printed.

Reviewer: L. P. Riftin, Candidate of Technical Sciences; Ed.:
G. A. Smirnov, Candidate of Technical Sciences; Ed. of
Publishing House: N. Z. Simonovskiy; Tech. Ed.:
O. V. Speranskaya; Managing Ed. for Literature on the Design
and Operation of Machinery (Leningrad Division, Mashgiz):
F. I. Fetisov, Engineer.

PURPOSE: This book is intended for engineers and scientists of
design organizations and scientific research institutes con-
cerned with instrument construction.

Card 1/ 4

APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000721520003-1"

Designing Mechanisms (Cont.)

SOV/2915

COVERAGE: This book deals with the theory and practice of
designing mechanisms for use in measuring instruments. The
mathematical background for approximating functions of
complex mechanisms is presented. Determination of the
parameters of a mechanism, manufacturing errors, compensation
and regulation, and mechanism designs for instruments for
linear and angular measurements are described. No personalities
are mentioned. There are 29 references: 27 Soviet, 1 German,
and 1 English.

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| 2. Polynomials least deviating from zero | 12 |
| 3. Approximation of functions by polynomials to some power | 17 |

Card 2/ 4

KEMPINSKIY, Mikhail Mendelevich; TYUMENEVA, S.T., inzh., red.;
FREGER, D.P., izd.red.; GVIRTS, V.L., tekhn.red.

[Measuring spring heads manufactured by the Leningrad Instrument Plant; experience in using and repairing] Pruzhinnye izmeritel'nye golovki Leningradskogo instrumental'nogo zavoda; opyt ekspluatatsii i remonta. Leningrad, 1961. 18 p. (Leningradskii Dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriya: Kontrol' kachestva produktsii, no.1). (MIRA 14:6)
(Measuring instruments)

KEMPINSKIY, Mikhail Mendeleovich; OVCHINNIKOV, .G.A., red.; VASIL'YEV,
Yu.A., red. izd-va; BELOGUROVA, I.A., tekhn. red.

[New devices for precision linear measurements; survey] Novye
pribory dlia tochnykh lineinykh izmerenii; obzor. Leningrad,
Leningr.dom nauchno-tekhn.propagandy, 1962. 75 p.

(MIRA 15:8)

(Measuring instruments) (Length measurement)

ORLOV, P.M.; ~~KRETSOVA, S.P.~~; KASHINTSEV, S.N.; SASS-TISSOVSKIY, redaktor;
UDALOV, A.G., tekhnicheskiiy redaktor

[Breeds of cattle at the All-Union Agricultural Exhibition] Porody
krupnogo rogatogo skota po materialam VSKhV. Izd. 2-oe, perer. 1
dop. [Moskva] Izd-vo Ministerstva sel'skogo khoziaistva SSSR, 1956.
143 p. (MLRA 10:1)

(Cattle breeds)

JASNOWSKI, S.; MACKOWIAK, S.; KEMULA, F.

Influence of the stock on *Venturia inaequalis* (Cooke)
Aderh. infecting apple trees. Acta agrobot 14 no.1:245-
255 '63.

1. Laboratory of Seed Breeding and Evaluation and Nurseries,
Institute of Pomology, Skierniewice.

Polarographic studies with the dropping mercury cathode. XI. Overpotential of mercury deposited from mercuric salt solns. W. KUMILA (Collection Czechoslov. Chem. Communications 2, 347 62(1967)). -- In mixts. of $\text{Hg}(\text{CN})_2$ and HNO_3 , no indication of an overpotential of Hg was observed. With mercuric salts curves divisible into 4 parts were obtained. These distinct parts were: (1) a small increase in current at the beginning (0.03 v.), (2) an exponential increase (0.3-0.5 v.), (3) a sudden linear increase (0.5-0.8 v.) and (4) a discontinuous fall to the "satn. current" value (0.8 v. onward). (2) is of fundamental importance, and its investigation is reported in this paper. The overpotential observed with $\text{Hg}(\text{CN})_2$ solns. constg. electrolytes depends only on the concn. of $\text{Hg}(\text{CN})_2$, and is not influenced by the presence of electrolytes. Changes in H⁺ ion concn. did not affect the overpotential, which changes only according to the expression $(RT/F) \log [\text{Hg}(\text{CN})_2]$. Temp. was found to have no effect on the overpotential. The curves show that Hg deposits at -0.200 v. from 0.01 N $\text{Hg}(\text{CN})_2$ solns. and at -0.242 v. from 0.001 N $\text{Hg}(\text{CN})_2$ solns., whatever be the concn. of added electrolyte. The overvoltages are given by the above deposition potentials. A similar,

but much more pos., overpotential was observed in solns. of HgCl_2 . The overpotential is attributed to the slowness of ionization of $\text{Hg}(\text{CN})_2$, and an irreversible process is assumed in which certain molecules entering into the cathodic interfacial potential gradient are oxidized. The no. of such moln. is deduced kinetically, and thus the shape of the current-voltage curves deduced. XII. Beginning of the decomposition of sucrose. K. SAMURNA. Ibid. 361 0. -- The max. on the current-voltage curves due to the reduction of atm. O at the dropping Hg cathode in a 0.1M K_2SO_4 soln. was found to be sensitive to impurities of sucrose (up to 5%) in the soln. Traces of surface-active matter present in the dissolved sugar causes considerable depression of the O max. By heating pure sucrose, substances depressing the O max. were produced, and the changes occurring in sucrose at the beginning of its decompn. were thus followed polarographically. It was found that after 10 min. heating at 100°, a "reversible" decompn. (i.e., one in which the effect on the O max. of the substance produced disappeared after a time) took place, the suppressive action of which disappeared after prolonged heating (about 1 hr.). Heating for more than 3 hrs. at 100° caused a profound irreversible decompn. of sucrose, which increased with the dura-

tion of heating at 100° , and which caused a permanent suppression of the α max. It was also observed that the α max. was depressed when the solution was heated for a hrs. at 70° , showing that dry surface begins to decompose at 70° even though, during its manual, higher temps. are employed. XIII. Effect of albumins. J. HAYES and J. HANDELA. *Ibid* 3709. The current voltage curves obtained by the polarographic method revealed the presence of albumins in soln. An NH_4 salt added to a soln. contg. albuminous matter increased the current at a potential about 0.2 v. more pos. than the potential at which NH_4 ions are deposited. In an excess of NH_4 ions the height of the wave due to albumins reached a limit, which was proportional to the content of sol. albumins in soln. The presence of albumins was detected in traces of 0.001%. The height of the albumin wave increased proportionally to the quantity of serum added. To prevent flocculation of the serum, diln. was made by an isotonic soln. If diln. with water the serum soln. showed a sharply and irregularly decreasing albumin content; e. g. at a diln. of 1:100 hardly any wave was observed. The best solvent proved to be a 0.146 N NH_4Cl soln., the test being most distinct when the soln. was allowed to stand for several hrs. in the cold after diln. Addition of HCl , AcOH and small quantities of alkalis did not affect the position of the albumin wave, although larger quantities of alkali caused the wave to decrease. When the albumin content of the soln. was kept const. the height of the wave was proportional to the concn. of NH_4 ions, reaching a max. height in a 0.2 N NH_4Cl soln. When albumin was added to a 0.2 N NH_4Cl soln. the height of the wave increased with increasing albumin content, until the height of the albumin wave reached that of the NH_4OH wave; further addition did not increase the diffusion current although they still increased the absorption max. in which the albumin and the NH_4 waves conjointly terminated. Glycine, aspartic acid and hydrochlorides of secondary amines behaved like NH_4 ions. Simpler amino acids, e. g., leucine, were found not to produce the "albumin effect" on the current-voltage curves. Only undecomposed albumins produced the wave effect on the deposition curves of NH_4 and amine solns. Gelatin suppresses the wave. To explain the results, the view is taken that the increase in current due to the NH_4 ions is really furnished by the deposition of H ions from the equil. $\text{NH}_4 + \text{H}^+ \rightleftharpoons \text{NH}_3$. The albumin is assumed to assoc. with NH_4 ions, thus loosening the bond between the H ion and NH_4 . The deposition of these loosely bound H ions then takes place more readily, i. e., at a more pos. potential, than normally, thus causing a wave on the current-voltage curve before that due to free NH_4 ions.

EDWARD H. SOROKIN

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PROCESSES AND PROPERTIES IN THE

Polarographic studies with the dropping mercury cathode. XIV. Discontinuities on curves obtained in solutions of mercuric cyanide. W. KEMULA. *Collection Czechoslov. Chem. Comm.* 2, 302-19(1930); cf. C. A. 24, 4215. Two kinds of discontinuities occurring on the polarographic current-voltage curves obtained by the electrolysis of $\text{Hg}(\text{CN})_2$ with the dropping Hg cathode, were studied. The potential at which the first discontinuity appears became more neg. as the drop time (of the Hg cathode) became greater, and simultaneously the 2nd discontinuous fall appeared earlier, so that the width of the max. was reduced until it finally disappeared with very slow Hg dropping (e.g., 2.4 sec. drop time). If the $\text{Hg}(\text{CN})_2$ concn. exceeded that of the KCl (present as conducting agent) in the soln. the first discontinuity was not given, the two concns. had to be of the same order. BaCl_2 , AlCl_3 , K_2SO_4 , KH_2PO_4 , and $\text{K}_3\text{Fe}(\text{CN})_6$ were without influence on the discontinuity. Small quantities of KI caused a suppression of both discontinuities, while larger quantities caused a new appearance of the discontinuous max. with the first discontinuity distinctly discernible, due to the formation of the complex $[\text{Hg}(\text{CN})_5]^{2-}$. For a more accurate study of the results obtained a short period (0.01 sec.) torsion string galvanometer was used to register the current-time curves during the formation of single Hg drops, thus recording the cathodic charging process. The applied e.m.f. was kept const. while the photographic paper (on which the curves are recorded) was moved fairly rapidly. In this manner, curves for HgNO_3 solns. (i.e., the simplest example of a discontinuous max. in which the first discontinuity is not given) and for $\text{Hg}(\text{CN})_2$ solns. were obtained at voltages where the adsorption current existed and also at voltages at which the diffusion current had already been reached. It is deduced that the first discontinuity is due to the adsorption of $\text{Hg}(\text{CN})_2$ taking place at a cathode potential at which the rate of adsorption of indifferent ions, e.g., Cl^- , SO_4^{2-} , I^- , $\text{Fe}(\text{CN})_6^{4-}$, to the interface is decreased by reason of the small value of the adsorption potential near electrocapillary zero. The second discontinuity, i.e., the fall of the max. (cf. C. A. 24, 3180) was due to exhaustion of reducible matter and the consequent change of the adsorption current into the diffusion current. This explanation is further supported by the results of expts. in which intermittent electrolysis was applied to the solns.

EDWARD H. SANIGAR

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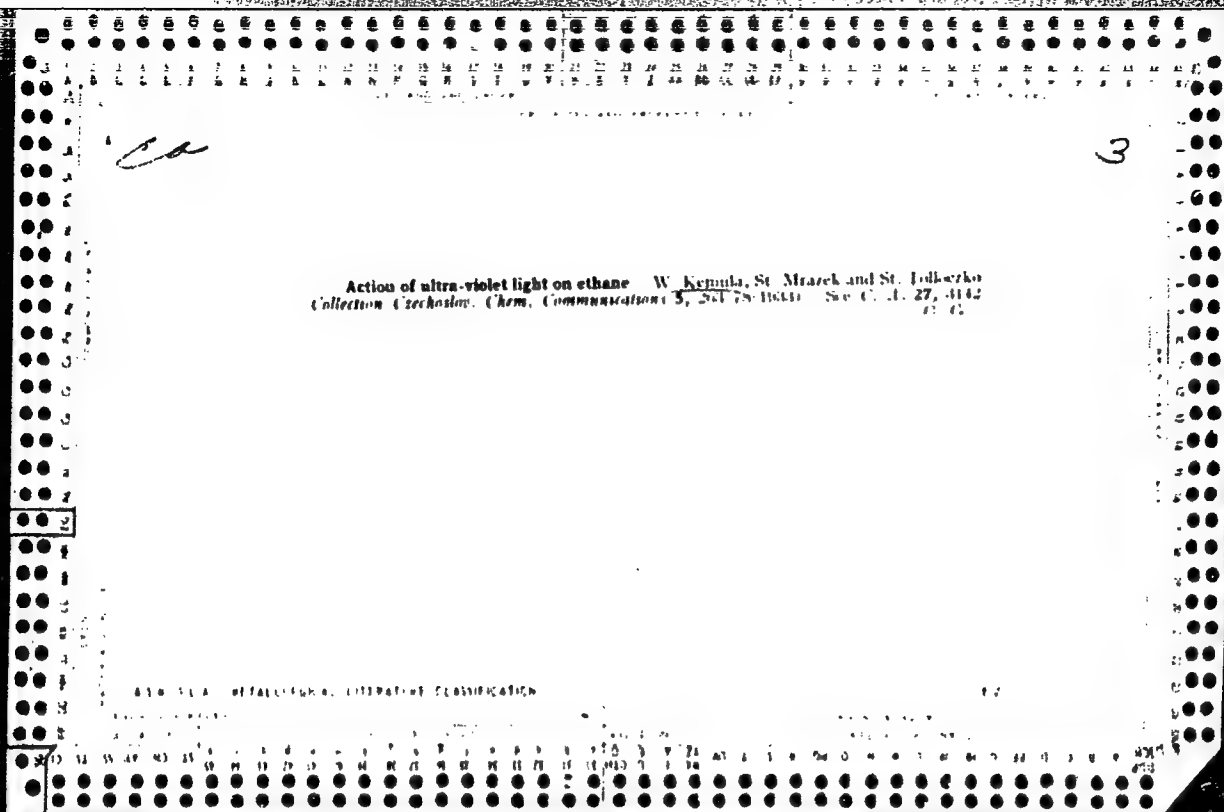
C-3

Action of ultra-violet light on aliphatic hydrocarbons. W. KIRKLA (Nouv. Chem., 1930, 10, 278-287). No decomposition of methane takes place under the influence of irradiation with a mercury-vapour lamp. Under analogous conditions ethane yields hydrogen, methane, butane, heptane, and a small amount of unidentified saturated and unsaturated liquid hydrocarbons. The products of photolysis and their relative amounts vary with the duration of irradiation of butane. The reaction is best represented by $n\text{C}_2\text{H}_6 \rightarrow (n-1)\text{H}_2 + \text{C}_n\text{H}_{2n+2}$ (liquid), so that n volumes of ethane yield $(n-1)$ volumes of hydrogen; i.e., the volume of gas diminishes.

R. TRUSKOWSKI.

Action of ultra-violet light on ethane. W. KEMPA, ST. MEYER and ST. TOL-
LIERO *Chem. Listy* 28, 406-73 (1932) - C_2H_6 yields C_2H_4 , C_2H_2 and C_2H , together
with traces of C_2H_6 , on irradiation with ultra-violet light in presence of H_2 vapor. The
proportion of C_2H_4 in the product varies directly with the rate of flow and the pressure,
and inversely with the temp. of the receiver. Both the linkings C-C and C-H undergo
activation; the rate of activation is independent of the pressure and of the rate of flow,
but depends exclusively on the intensity of irradiation. H C A

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POLAROGRAPHIC STUDIES WITH THE DROPPING-MERCURY CATHODE. XXXIV. SUPERVOLTAGE EFFECT OF CERTAIN ALKALOIDS ON THE MAXIMUM OF CURRENT DUE TO ELECTROREDUCTION OF OXYGEN. RYH HANAMOTO. *Collection Czechoslov. Chem. Communications* 8, 427-30(1963).—II. uses the concept (cf. C. A. 28, 3443) of taking as a measure of the degree of adsorption of a compd. at the dropping-Hg cathode that molar diln. of the compd. (dissolved in 10^{-2} N KCl soln.) which reduces the atm. O max. on polarographic curves to $\frac{1}{2}$ its original height. II. assumes that adsorption on the Hg drop reaches equil. before the drop falls and forms a unimolecular layer on the drop; this justifying the application of Freundlich's isothermal adsorption equation in the form $(I-I') = aC^n$, where I' and I are the heights of the max. with and without an adsorbable compd. present. If $\log(I-I')$ is plotted against $\log C$, a straight line is obtained from which the eqn'n for n moles/liter can be read. The reciprocal of this value, i.e., $1/C_n = V_a$, is an electrochem. adsorbability coeff., the diln. being expressed as l mole adsorbable compd. in $a \times 10^4$; a being then taken as the electrochem. adsorbability coeff. As so det'd., the following values of a are given: atropine sulfate 23.96, quinine-HCl 16.96, papaverine-HCl 16.67, strychnine nitrate 13.04 and morphine-HCl 7.82. XXXV. Electrolysis of aqueous solns. of beryllium salts. W. Kemula and M. Michalski. *Ibid.* 436-42.—The normal diffusion potential of Be ions at the dropping-Hg cathode is -1.70 v. against the

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N calomel electrode, when measured with a galvanometer of sensitivity 1×10^{-8} amp./mm. Because of hydrolysis, the current-voltage curves of Be salt solns. show an increase due to H deposition before the increase due to Be deposition. Owing to the proximity of the Be and Al deposition potentials (-1.70 v. and -1.66 v., resp.), and their similarity of electrochem. behavior, the joint increase in the current-voltage curve due to the presence

of both metals in soln. could not be resolved. XXXVI. Catalysis of the electrodeposition of hydrogen due to the presence of the platinum metals. P. Harnsamenko and I. Slendyk. *Ibid.* 479-86.—The catalytic effect of Pt has been reported previously (cf. C. A. 26, 8854; 27, 447). Traces of Ru, Rh, Pd, Ir and Pt at the cathode surface produce a considerable decrease in H overvoltage, and they produce, in general, 3 stages in the catalytic deposition of H: (1) at -1.2 v., (2) at -0.9 to -1.06 v., and (3) at -0.5 to -0.7 v. from the *N* calomel zero. The exact values of these potentials depend on the concentration of the catalyst and of H ions. Pt and Pd show only stage 1. The occurrence of the 3 stages of catalyzed H deposition is explained by the formation of 3 types of catalytic centers having different catalytic activities due to aggregation of atoms of catalyst into polyat. complexes at the Hg surface. The total catalytic effect, measured by the sum of the limiting currents of all catalytic stages,

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| PROCESSING AND PROPERTIES INDEX | | | | | | | | | | | | | | | | | | | |
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| <p>depends on the position of the catalyst in the periodic system: Pt is the weakest catalyst in the series Ru-Rh-Pd, while Pt is less active than Ir. The development of the various catalytic stages depends upon time; by varying the rate of Hg-dropping the catalytic effects of stages 1 or 2 can be either intensified or suppressed. The limiting current of the catalyzed H deposition greatly increases with increasing concn. of H ions up to about 0.05 N; further increase in H-ion concn. produces a slow increase of the limiting current toward a max. E. B. S.</p> | | | | | | | | | | | | | | | | | | | |
| <p>COMMON ELEMENTS</p> <p>PERIODIC TABLE</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p> | | | | | | | | | | | | | | | | | | | |
| <p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p> | | | | | | | | | | | | | | | | | | | |

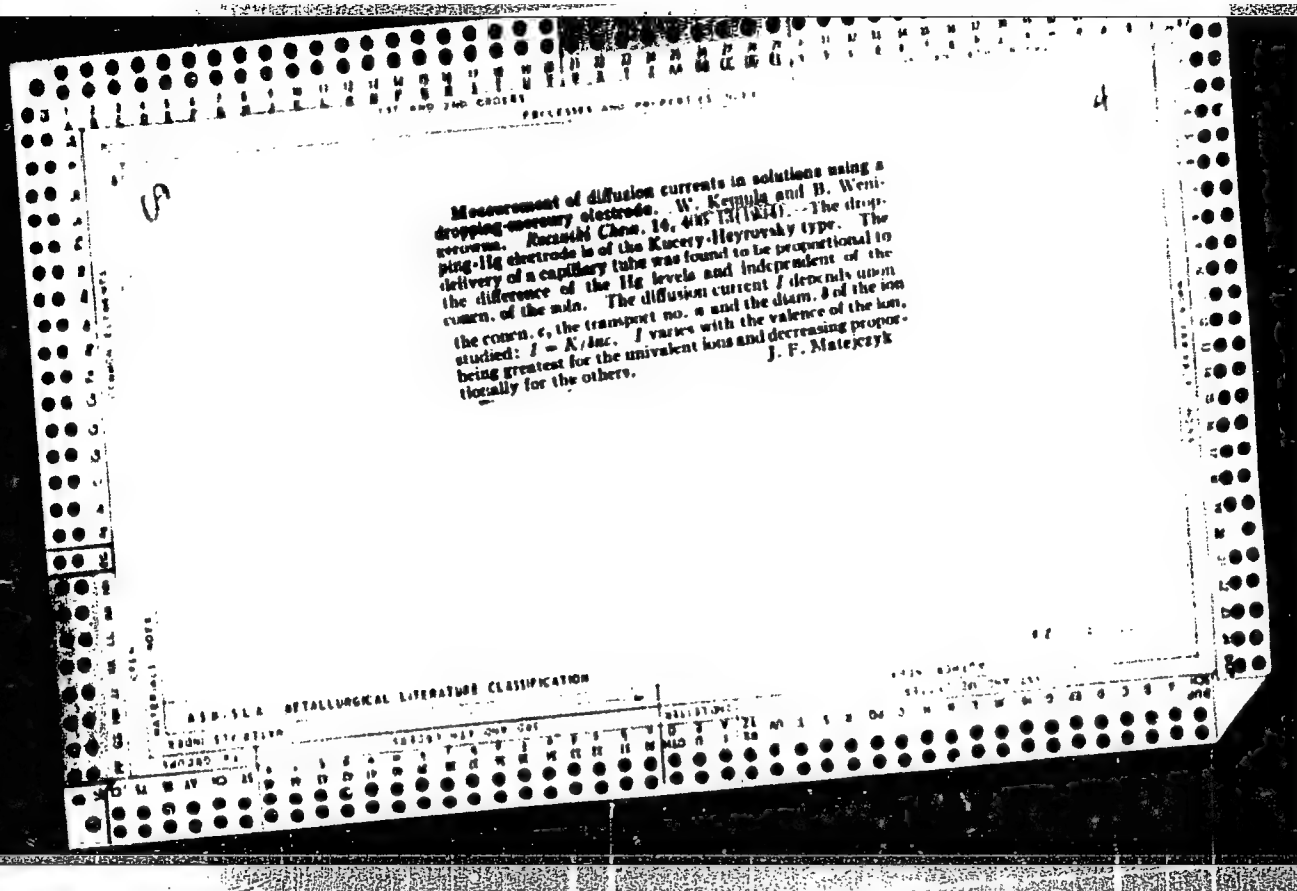
| 1ST AND 2ND COLUMNS | | | | | | | | | | 3RD AND 4TH COLUMNS | | | | | | | | | |
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| PROCEDURES AND PROPERTIES INDEX | | | | | | | | | | | | | | | | | | | |
| <p><i>Be</i></p> <p>Electrodeposition with the dropping mercury cathode. XXXV. Electrolysis of aqueous solutions of beryllium salts. W. Knappe and M. MACHARKE (Zell. Chem. Therm. Chem., 1969, 5, 438-442). The deposition of Be at the dropping Hg cathode is preceded by H_2 evolution, the effect being reduced by higher Be content. The close similarity between the deposition potentials of Be and Al makes it impossible to separate these metals. D. R. D.</p> | | | | | | | | | | | | | | | | | | | |
| A.I.R. 5.1.2 METALLURGICAL LITERATURE CLASSIFICATION | | | | | | | | | | 1969-1970 | | | | | | | | | |
| <p>1969-1970</p> <p>1969-1970</p> | | | | | | | | | | <p>1969-1970</p> <p>1969-1970</p> | | | | | | | | | |

16

Spectrographic detection and determination of beryllium in minerals and rocks. W. Kemula and J. Rydzinski. *Pysmal (Ches. 17, 80 97(1953))*. In the first of two methods an a. c. of high tension and high frequency was used. By working with line 3131 Å, Be can be detected in 0.0001% concn. in the presence of Na, K, Li, Ca, Ti, Cu, Ba, Mg and Al. In the presence of Fe, Ni, Co, Cr, Mn, Ti, Zr, W, V and Mo, line 2484 Å should be used in which the limiting concn. of Be is 0.001%. If line 2484 Å has to be used, the limiting concn. is 0.01%. In the second method a direct current is used. A series of consecutive spectra is obtained in which the dark

ening of lines of particular elements in the vertical series of spectra changes, because of varied rates of evapn. of the elements making up the mixt. under analysis. By this second method 0.01% Be can be detected in admixt. of Na, K, Ba, Mg, Al, Si and in natural granite by using either 3131 Å. or 2484 Å. The order of fading power of various elements on the Be lines was found to be K, Na, Ba, Ca, Mg, Al, Si. This is the order of ionization potentials of these elements.

A. C. Zachlin



BC

a-1

Catalysis of acetylene polymerization in ultra-violet light by mercury vapour. W. KAMULA.
(Coll. Czech. Chem. Comm., 1935, 7, 319-330;
of. A., 1936, 186).—Poloncial (cf. *ibid.*, 1932).

J. G. A. O.

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A-1

Catalysis of acetylene polymerization in ultra-violet light by mercury vapour. (A) F. TOUL.
(B) W. KAMULA (Coll. Czech. Chem. Comm., 1935, 7, 491—492, 493—494).—(A) Polemical against Kamula (cf. A., 1935, 1208).
(B) A reply.

R. S. B.

ASB-34 METALLURGICAL LITERATURE CLASSIFICATION

1935

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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Stanislaw Tollucho (1886-1935). W. Kemola. Roczniki Chem. 18, 240-57 (1935).—A biography with portrait and bibliography.

ASB-SLA DETALLURGICAL LITERATURE CLASSIFICATION

117 AND 118 CODES

PROCESS AND PROPERTIES INDEX

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ca

The effect of electrolytes on the electrocapillary curve of mercury. Wiktor Kemula and Emanuel Recz. *Rozprawy Chem.* 10, 255 (1936) (German summary). The static Gouy-Lippmann and the dynamic Kucera methods were used. The electrocapillary curves obtained by the 2 methods agree closely in the more concd. solns. Breaks and double maxima in the dynamic-method curves are explained by the formation of an electrokinetic potential when Hg flows from the capillary. The absorption property of the drop electrode is probably due to this potential. The effect of cations agrees with the theoretical predictions of Stern (*C. A.* 10, 770). The formation of a rigid Hg meniscus is caused by the seepage of liquids into the capillary tube, which tends to break the Hg column. J. F. Matejczyk

ASD-5.1.4 METALLURGICAL LITERATURE CLASSIFICATION

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117 AND 118 (SECRET) 119 AND 120 (SECRET)

PROCESSES AND PROPERTIES INDEX

BC 2-1

Polarographic studies. IV. Exaltation of limiting currents. Influence of oxygen on the limiting currents for different cations. W. KEMURA and M. MICHAELIS (Roca. Chem., 1936, 16, 335-341).—Exaltation of the limiting current is observed in the electrolysis of 0.001N.KCl saturated with O_2 as compared with solutions saturated with H_2 . The reverse effect is obtained with 0.001N.HCl; this is ascribed to the reactions $O_2 + 2H_2O \rightarrow H_2O_2 + 2OH^-$; $H_2O_2 + 2H_2O \rightarrow 2H_2O + 2OH^-$; $OH^- + H^+ \rightarrow H_2O$. R. T.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

117 AND 118 (SECRET) 119 AND 120 (SECRET)

BC

ABSORPTION SPECTRA OF CERTAIN HYDRONAPHTHALENES. W. KEMULA and B. L. DUNICZ (Rock. Chem., 1937, 17, 36-41).—Morton's results (A., 1934, 941) for 1:2- and 1:4-di- (I) and 1:2:3:4-tetrahydronaphthalene (II) are on the whole confirmed, except that new bands at λ 238-5 have been found for (I) and (II), and that the bands at λ 283 and 287 μ , found by Morton for (II), are due to presence of $C_{10}H_8$ in the (II). R. T.

| PROCESS AND PROPERTIES INDEX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>BC</p> <p style="text-align: right;">A-1</p> <p>Photochemical transformations of methane, ethane, propane, and n-butane. III. W. Kuz. ULA and A. DYDUSZYNSKI (Roc. Chem., 1937, 17, 423-430).—The effect of ultra-violet illumination of the gaseous hydrocarbons is as follows: $\text{CH}_4 \rightarrow \text{CH}_2 + \text{H}_2$; $2\text{CH}_4 \rightarrow \text{C}_2\text{H}_6 \rightarrow \text{polymerides}$; $\text{C}_2\text{H}_{6.1} \rightarrow \text{C}_2\text{H}_6 + \text{H}_2$; $\text{C}_2\text{H}_6 \rightarrow \text{polymerides}$. R. T.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <table border="1"> <thead> <tr> <th colspan="10">SECTION 1</th> <th colspan="10">SECTION 2</th> </tr> <tr> <th colspan="10">SUBJECT</th> <th colspan="10">SUBJECT</th> </tr> </thead> <tbody> <tr> <td colspan="10"></td> <td colspan="10"></td> </tr> </tbody> </table> | | | | | | | | | | SECTION 1 | | | | | | | | | | SECTION 2 | | | | | | | | | | SUBJECT | | | | | | | | | | SUBJECT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SECTION 1 | | | | | | | | | | SECTION 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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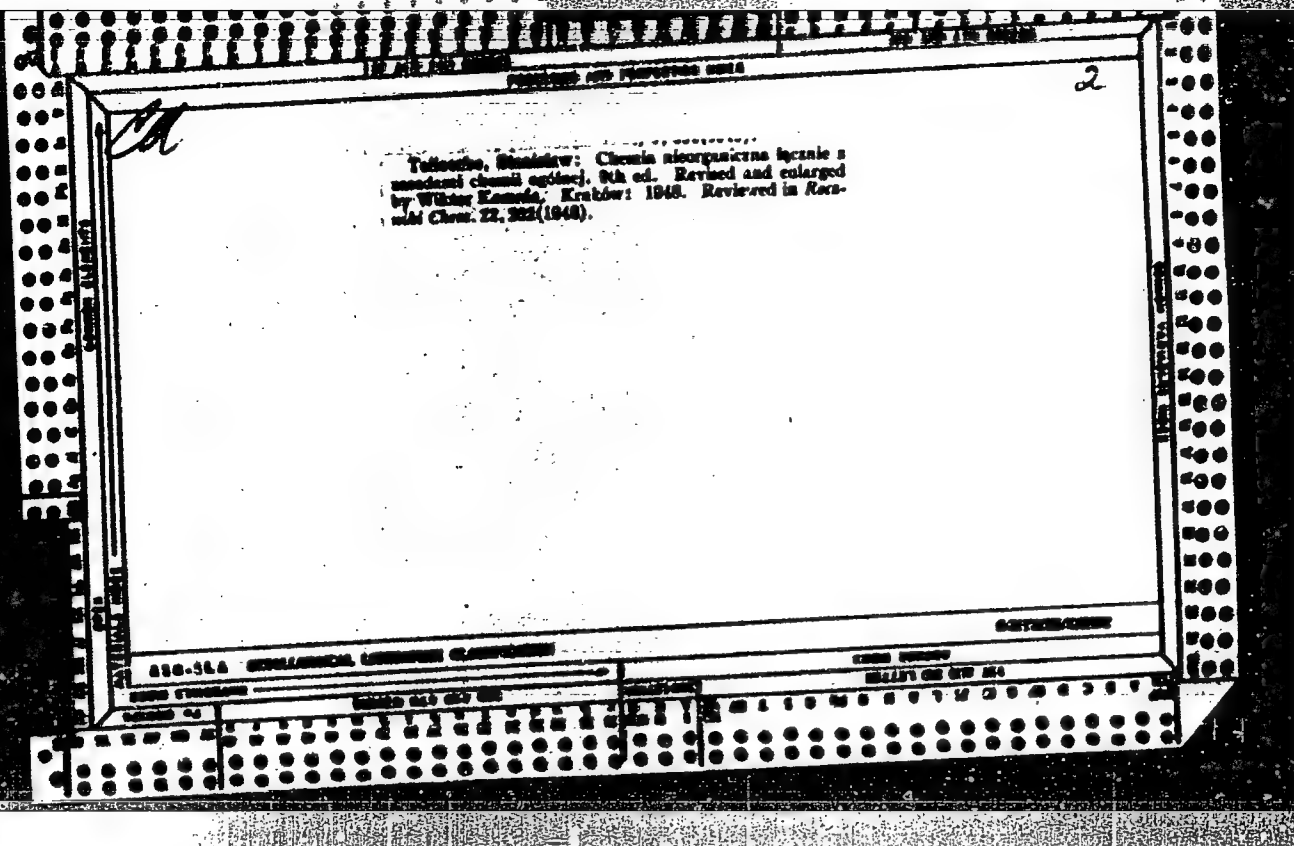
PROCESSES AND PROPERTIES INDEX

2-1

Influence of hydrogen on the sensitised photochemical transformation of methane. W. KAMULA, J. ZORNODOLA, and Z. KOPNIAR (Rocz. Chem., 1938, 18, 614-624).—The initial reactions taking place during illumination of CH_4 in presence of Hg, using a quartz-Hg vapour lamp, are: $\text{Hg} (1^3\text{S}_0) + h\nu \rightarrow \text{Hg}^* (2^3\text{P}_1)$; $\text{Hg}^* + \text{CH}_4 \rightarrow \text{CH}_3 + \text{H} + \text{Hg}$; $\text{Hg}^* + \text{CH}_4 \rightarrow \text{CH}_3 + \text{H}_2 + \text{Hg}$. These reactions are followed by: $\text{CH}_3 + \text{H} \rightarrow \text{CH}_4$; $\text{CH}_3 + \text{H} \rightarrow \text{CH}_2 + \text{H}_2$; $2\text{CH}_3 \rightarrow \text{C}_2\text{H}_6$; $2\text{CH}_3 \rightarrow \text{C}_2\text{H}_4 + \text{H}_2$; $\text{CH}_3 + \text{CH}_3 \rightarrow \text{C}_2\text{H}_6$; $2\text{H} \rightarrow \text{H}_2$; $\text{CH}_3 + \text{CH}_3 \rightarrow \text{C}_2\text{H}_4$; $2\text{C}_2\text{H}_5 \rightarrow \text{C}_4\text{H}_{10}$; $2\text{C}_2\text{H}_5 \rightarrow \text{C}_4\text{H}_8 + \text{C}_2\text{H}_6$; $\text{C}_2\text{H}_5 + \text{H} \rightarrow \text{C}_2\text{H}_6$; $\text{C}_2\text{H}_5 + \text{H} \rightarrow \text{C}_2\text{H}_4 + \text{H}_2$; $\text{C}_2\text{H}_5 + \text{CH}_3 \rightarrow \text{C}_3\text{H}_8$; $\text{C}_2\text{H}_5 + \text{H} \rightarrow \text{C}_2\text{H}_6$; $\text{C}_2\text{H}_5 + \text{H} \rightarrow \text{C}_2\text{H}_4$. With time, in view of accumulation of H_2 , the reaction $\text{Hg}^* + \text{H}_2 \rightarrow 2\text{H} + \text{Hg}$ begins to dominate over that of $\text{Hg}^* + \text{CH}_4$; as a result, the reaction $\text{CH}_3 + \text{H} \rightarrow \text{CH}_4$ becomes dominant, and the reactions are prevalently those involving CH_3 .

R. T.

ASAC SLA METALLURGICAL LITERATURE CLASSIFICATION



Kamula W.

Kamula W. and Michalski M. "Schematic Arrangements of the 'Interrupted Arc' as a Source of Emission in Spectra Analysis." (Schematy urzadzen luku przerywanego jako zrodla emisji w analizie spektralnej). Przemysl Chemiczny, No. 5, 1950, pp. 282-288, 5 figs.

Advantages of the "interrupted arc" are emphasized in comparison with other methods of exciting the emission of characteristic radiation in spectral analysis. Testing and improving the method applied by Pfeilsticker led to the construction of an installation nourished only by alternating current (needing no current switches), by means of which 100 separate discharges per sec. between the electrodes were obtained. The advantages of this installation consist in: greater intensity of discharges, increasing the sensibility of detecting elements with characteristic spark spectra, such as arsenium, phosphorus, carbon etc. There is also a possibility of quantitative spectral analysis. Schematic drawings of installations are included.

SO: Polish Technical Abstracts - No. 2, 1951

C A 3

The "interrupted arc" as a source of light in spectral analysis. W. Kemula and M. Michalski. *Przemysl Chem.* 6(29); 283-8(1950).—The various systems of the "interrupted arc" are described. The wire diagram described by Pfeilsticker (*Z. Elektrochem.* 43, 719(1937); *Z. Metallkunde* 30, 211(1938)) is improved upon to give greater intensity and stability of discharge. The possibility of detecting the spectra of As, P, and C are thus increased.
Frank Gonet

CA

7

Polarometric determination of oxygen. W. Kemula and S. Szeclerski (Warsaw Univ.). *Collection Czechoslov. Chem. Commun.* 15, 1009-75(1950)(in English).--The reduction of O at the dropping-Hg electrode produces OH⁻ which can be titrated amperometrically with standard HCl or with NaOAc-HOAc buffer of pH 5.1. In either case the titration is made at $E_{a.s.} = -1.8$ v. vs. S.C.E. and the vol. of reagent consumed is proportional to the amount of O present. With HCl the const. of proportionality changes with changing concn. of supporting electrolyte, because of changes in the diffusion coeff. of H⁺, but with the OAc⁻ buffer the results are independent of changes in ionic strength. For detg. dissolved O in water the sample is neutralized to pH 5.1 to remove carbonates, then titrated with 0.04 M HOAc \rightarrow 0.02 M NaOAc. Results agree with those of the Winkler method with an av. diff. of $\pm 0.8\%$.
Louis Meites

CA

Experimental demonstration of the hydroxyl-ion formation during the polarographic reduction of oxygen. K. Koppala and Z. R. Gralowski (Warsaw Univ.). Collection of Czechoslov. Chem. Commun. 15, 1085-90 (1980) (in English). --In neutral or weakly acid solns. contg. phenolphthalein, a pink color due to the formation of OH^- appears around the dropping electrode at potentials at which O is reduced. Similar phenomena occur during the reduction of H_2O_2 , NO_3^- , BrO_3^- , and some org. compds. When Ce^{4+} or La^{3+} solns. contg. O were electrolyzed, a ppt. of the metal hydroxide appeared as a "collar" on the tip of the capillary around the drop. Louis Meites

CA

2

Limiting currents of hydrogen in acetate buffer solutions
W. Kemula and J. Chodkowski (Warsaw Univ.), *Collection Czechoslov. Chem. Commun.* 18, 1001-1100 (1951)
(in English).—The limiting current of H_2 in an O_2 -free
NaOAc-HOAc buffer in the absence of supporting electrolyte
is proportional to the HOAc concn, and hence is governed
by the diffusion of HOAc mols. An excess of supporting
electrolyte exerts no suppressive effect on the H_2 wave.
The diffusion coeff. for HOAc is $4.4 \times 10^{-6} \text{ cm}^2 \text{ sec}^{-1}$
for 0.004 M HOAc in 0.8 M LiCl and $3.0 \times 10^{-6} \text{ cm}^2 \text{ sec}^{-1}$
for 0.005 M HOAc in 0.005 M NaOAc, both at 20°.
B. P. Block

CA

Movements of the dropping mercury electrode and of the electrolyte in the oscillographic measurements. Wiktor Kemula and Barbara Hehr (Univ. Warsaw, Poland). *Roczniki Chem.* 25, 223-34 (1951).—The dropping-Hg electrode was polarized by a periodically changing current. Over a large range of frequencies the dropping of Hg was irregular and the drops pulsated strongly. At low frequencies the pulsations were synchronized with the voltage changes of the polarizing current. The lifetime of the Hg drop depended on the frequency of the applied voltage, showing discontinuities at some frequencies. By adding pond. charcoal to the soln., appreciable stirring of the electrolyte near the electrode was observed. Thus the theory of polarography cannot be used as a basis of oscillographic measurements. A new theory is needed. I. Z. R.

KEMULA, VIKTOR

Poland

CA: 47:12043

with SLAWOMIR SJESTERSKI

Univ. Warsaw, Poland

"Dropping mercury electrode with regulated drop time."

Roczniki Chem. 26, 123-33 (1952) (English summary).

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345 31 346 32 34

Kempła W., Kornacki J. Polarometrie (Amperometrie) Indirect Determination of Potassium by Sodium Tetraphenylboron

Polarometryczne (amperometryczne) pośrednie oznaczanie potasu czterofenylboranem sodowym" Roczniki Chemii (PAN) N. 4 1954 pp. 835-841, 2 figs., 1 tab.

Elaboration of a rapid indirect polarometric (amperometric) determination of potassium using sodium tetraphenylboron $\text{Na}(\text{C}_6\text{H}_5)_4\text{B}$. The amount of potassium of the order of 1 mg in concentrations not less than 5:10 m may be determined within an error of $\pm 4\%$. An excess amount of sodium tetraphenylboron is added to the solution analyzed containing potassium and then titrated back by the addition of the excess LiNO_3 .

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KEMULA, W.

Chromatographic and polarographic method and its application. p. 453.
(PRZEMYSŁ CHEMICZNY, Vol. 10, No. 9, Sept. 1954, Warszawa, Poland)

SC: Monthly List of East European Accessions, (FEAL), LC, Vol. 3, No. 12, Dec.
1954, Uncl.

KEMULA, W.

(2)

1956. Electrophoretic separation of proteins on paper and their automatic photometric evaluation. W. Kemula and W. Bartosiewicz (*Roczn. Chem.*, 1954, 28 [1], 100-108).--The use of electrophoresis on paper for the separation and identification of blood serum proteins is reviewed. Recently Skarzynski, Ostrowski and Mikucki have produced absorption curves on sensitized paper, with the aid of a recording photo-absorptiometer, from mechanically propelled paper chromatograms. It was thus possible to determine, in a mixture of proteins, the percentage of the particular fractions (*Polski Tygodnik Lekarski*, 1952, 7, 121 and 657). It appears, however, that the absorption curves produced in this way are deformed by oscillations caused by the grain of the chromatographic paper. In this article an improved arrangement is described, which automatically registers well-defined photometric curves. The method has successfully been used for the quantitative evaluation of the proteins in blood serum. The electrophoretic apparatus consists of an aquarium glass, containing six paper strips horizontally placed on two glass rods. The ends of the strips are immersed in two glass troughs placed inside the aquarium, each containing 1 litre of a Veronal-Medinal buffer soln. A 120 to 500 V d.c., max. load 100 mA, is supplied by 2 graphite electrodes immersed in the buffer solutions. An ordinary optical lantern with a selenium photo element in place of the objective lens serves as a photometer. An electrically driven mechanism moves the paper strip in front of a 1-mm wide slot in

a metal screen; the variations of voltage of the selenium cell are registered as curves by a polarograph. The particular protein fractions are planimetrically evaluated. Ten to twelve hr. are required for complete separation of the proteins in 0.05 ml of blood serum placed on a 32-mm wide Whatman filter-paper strip. Normal human blood serum was found to contain 7.2 per cent. of total protein, consisting of 54.2 per cent. albumin, 4 per cent. α_1 -globulin, 9.1 per cent. α_2 , 9.7 per cent. β and 23 per cent. γ . Pathological blood serum (multiple myeloma) contained 6.8 per cent. of total protein, consisting of 27.7 per cent. albumin, 4.8 per cent. α_1 -globulin, 8.8 per cent. α_2 , 16.0 per cent. β and 43.0 per cent. $\gamma_1 + \gamma_2$. The analytical procedure and assemblage of the apparatus are fully described, and blood serum curves are reproduced.

W. KURCIN

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LELLA, W.: CIAR, A.

"Microcoulometric Studies of Electroreduction of 1,2,3,4,5,6-hexachloro-cyclohexane (Gammaxane)", P. 275, (ROCHEMII CHEMII, Vol. 28, No. 2, 1954, Warsaw, Poland)

SC: Monthly List of East European Accessions (MEAL), LC, Vol. 4, No. 3, March 1955, Uncl.

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KEWALA W. K. P.

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